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| EXAMINER | |
|---|---|
| SAWHNEY, HARGOBIND S | |
| **ART UNIT** | **PAPER NUMBER** |
| 2875 | |

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/810,504 | KRUPA ET AL. | |
| | Examiner | Art Unit | |
| | Hargobind S. Sawhney | 2875 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *02 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/8/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. The preliminary amendment filed on June 2, 2005 has been entered. Accordingly, claims 1-25 filed with the original application have been replaced with claims 1-31 included in the above-indicated preliminary amendment.

### *Claim Objections*

2. Claim 19 is objected to because of the following informalities:

The limitation " the dome lens", recited in line 2, lacks sufficient antecedent basis.

The limitation " the dome lens" should be rephrased as – the structure shaped as a part of a dome--.

Claim 19 of the instant application has been examined considering the limitation " the dome lens" as -- the structure shaped as a part of a dome --.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 6, 8, 10-14, 23 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Kazakevich (US Patent No.: 6,921,920 B2).

Regarding claims 1-4, 6, 8, 10-14, 23 and 25 Kazakevich ('920 B2) discloses a compact solid-state light source (Figure 7A) comprising:

- a high-power solid-state light emitting device- combination including elements 401, 402a, 402b, 403, 404 408 – (Figures 7A and 7B, column 7, lines 10 and 11);
- a light-guide 406 having proximal light-receiving end- adjacent to the light-emitting device 401 (Figures 7A and 7B, column 7, lines 26-28);
- the light-emitting device including light-emitting diode (LED) (Figures 7A and 7B, column 7, lines 15-17);
- the LED 401 emitting white light (Figures 7A and 7B, column 5, lines 50-61);
- the LED 401 emitting visible light including at least 470nm-700 nm wave length (Figures 7A and 7B, column 5, lines 50-61);
- the LED 401 including white-light emitting substance – phosphorescent layer - (Figures 7A and 7B, column 5, lines 50-61);
- the light guide 406 including a plurality of small diameter fibers (Figures 7A and 7B, column 7, lines 26 and 27);
- the fibers of the light-guide 406 – made of glass (Figures 7A and 7B, column 4, lines 63-65);

- a ferrule 69 surrounding the fiber optic bundle 67 or 406 (Figures 4, 7A and 7B, column 5, lines 42-44);
- the ferrule located close to the proximal end of the fiber bundle 67 (Figures 4, 7A and 7B, column 5, lines 42-44);
- a flat emitting surface of the LED 401 (Figure 7A);
- the light guide 406 including a flat surface – the end surface of the proximal end of the light guide 406 – positioned directly on the light emitting surface of the LED 410 (Figure 7A);
- the light source 401 positioned within an endoscope (Figures 7A, 14 and 15, column 2, lines 46-48; and column 9, lines 47, 48 and 64-66); and
- a mechanical light guide-fixing device 412 coupled to the light guide 406 (Figure 7A, column 7, lines 25, 26 and 28-30).

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 5, 7, 9, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazakevich (US Patent No.: 6,921,920 B2).

Regarding 5, Kazakevich ('920 B2) discloses a compact solid-state light source (Figure 7A) including light emitting diode (LED). However, Kazakevich ('920 B2) does not specifically teach the LED having about 1mm square light-emitting area.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the compact solid-state light source of Kazakevich ('920 B2) by providing an LED having about 1mm square light-emitting area, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding Claim 7, Kazakevich ('920 B2) discloses a compact solid-state light source (Figure 7A) including light emitting diode (LED). However, Kazakevich ('920 B2) does not specifically teach the LED withdrawing up to 5W of power.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the compact solid-state light source of Kazakevich ('920 B2) by providing an LED withdrawing up to 5W of power, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding Claim 9, Kazakevich ('920 B2) discloses a compact solid-state light source (Figure 7A) including a bundle of optical fibers. However, Kazakevich ('920 B2) does not specifically teach the optical fiber bundle having diameter about 30-50 micrometers.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the compact solid-state light source of Kazakevich ('920 B2) by

providing a optical fiber bundle having diameter about 30-50 micrometers , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding Claim 21, Kazakevich ('920 B2) discloses a compact solid-state light source (Figure 7A) including a bundle of optical fibers. However, Kazakevich ('920 B2) does not specifically teach the compact solid-state light source including a single optical fiber.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the a compact solid-state light source of Kazakevich ('920 B2) by providing a single optical fiber instead of a bundle of optical fibers, since such a modification would have involved a mere change in number of the component. Changing the size or number of similar components is generally recognized as being within the level of ordinary skill in the art.

7. Claims 15, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazakevich (US Patent No.: 6,921,920 B2) in view of Qadar (US Patent Application Pub. No.: US 2003/0235800 A1) hereinafter referred as Quadar.

Regarding 15, Kazakevich ('920 B2) discloses a compact solid-state light source (Figure 7A) including light emitting diode (LED) optically coupled to a proximal end of light guide including a fiber optic bundle. However, Kazakevich ('920 B2) does not specifically teach an additional light conductive material disposed between the light-emitting device – LED- and the proximal end of the light guide.

On the other hand, Quadar discloses an LED light device 200 (Figure 7) comprising a light conductive material 240 disposed between the light-emitting device 230 and the proximal end of the light guide 210 (Figure 7A, Para. 0049).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the a compact solid-state light source of Kazakevich ('920 B2) by providing the light conductive material as taught by Qadar for benefit and advantage of enhancing uniform and efficient transmission of light from the light source.

Regarding claims 18, 19 and 20, Kazakevich ('920 B2) in view of Qadar discloses the compact solid-state light source further comprising:

- a structure 240 – interpreted as structurally defined boundaries containing the light-conductive material containing the light conductive material - (Quadar, Figure 7A, Para. 0049-0051);

- the structure 240 including a dome lens surrounding the light conductive material (Quadar, Figure 7A, Para. 0049); and

- the dome lens – the structure 240 including an upper dome-shaped surface – including a flat surface positioned opposite and adjacent to the proximal end of the light guide 210 (Quadar, Figure 7A).

8. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazakevich (US Patent No.: 6,921,920 B2) in view of Qadar (US Patent Application Pub. No.: US 2003/0235800 A1), hereinafter referred as Quadar, as applied

to Claim 15 above, and further in view of Krames et al. (US Patent Application Pub. No.: US 2003/0141507 A1).

Regarding each of claims 16 and 17, Kazakevich ('920 B2) in view of Qadar discloses the compact solid-state light source comprising a light conductive material disposed between the light emitter and the proximal end of the light guide. However, neither combined nor individual teaching of Kazakevich ('920 B2) and Qadar discloses the light conductive material further including: an index-matching silicone-based encapsulent material.

On the other hand, Krames et al. (US Patent Application Pub. No.: US 2003/0141507 A1), hereinafter referred as Krames, discloses a high-power light emitting diode assembly 100 (Figure 13) including an light conductive encapsulent filled with index-matching soft gel (Figure 13, Para. 0120) well known as made from silicone compound.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the a compact solid-state light source of Kazakevich ('920 B2) in view of Quadar by providing the silicone-based gel filled encapsulent as taught by Krames for benefit and advantage of enhancing light extraction efficiency of the light emitter.

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazakevich (US Patent No.: 6,921,920 B2) in view of Hopler et al. (US Patent No.: 5,680,492).

Kazakevich ('920 B2) discloses a compact solid-state light source (Figure 7A) including a bundle of optical fibers. However, Kazakevich ('920 B2) does not specifically teach the compact solid-state light source including a solid taper coupled to a small a plurality of optical fibers.

On the other hand, Hopler et al. ('492) discloses an endoscope (Figure 2) including a tapered optical coupler 16 for connecting a singular fiber 12 to a bundle of optical fibers 14 (Figures 1 and 2, column 5, lines 5-10).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the a compact solid-state light source of Kazakevich ('920 B2) by providing the optical coupler as taught by Hopler et al. ('492) for the benefits and advantages of facilitating single optical fiber-to- a optical fiber bundle for reducing high intensity beam of light into for appropriate use.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazakevich (US Patent No.: 6,921,920 B2) in view of Matsumoto (US Patent No.: 6,318,887 B1)

Kazakevich ('920 B2) discloses a compact solid-state light source (Figure 7A) including light emitting diode (LED) energized with a power supply. However, Kazakevich ('920 B2) does not specifically teach the power supply including a battery power source.

On the other hand, Matsumoto ('887 B1) discloses an endoscope (Figure 1) including a plurality of LEDs 18 energized with a battery power source 14 (Figure 1, column 2, lines 62-64).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the compact solid-state light source of Kazakevich ('920 B2) by providing a battery power source as taught by Matsumoto ('887 B1) for the benefits of portability of the device to remote locations.

11. Claims 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartung (US Patent No.: 6,932,599 B1).

Regarding claim 26, Hartung ('599 B1) discloses an irradiation unit (Figure 1) for medical application, and the irradiation unit 1 comprising:

- a high-power solid state light –emitting device 12 positioned within a handle 10 (Figure 1, column 6, lines 11 and 15); and
- a light guide 18 having its proximal end positioned adjacent the high-power solid state light emitting device 12, and the distal end farther from the high-power solid state light emitting device 12 (Figure 1).

Although, Hartung ('599 B1) meets almost all limitations of the Claim 26, Hartung ('599 B1) does not identify the equipment as an endoscope.

It has been held that a recitation with respect to the manner in which a claim apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation.

Regarding claims 27 and 28, Hartung ('599 B1) discloses the irradiation unit 1 further comprising:

- a battery 13 powering the high-power solid state light emitting device 12, and the distal end farther from the high-power solid state light emitting device 12 (Figure 1, column 6, lines 15 and 16); and
- the proximal light-receiving end of the light guide 18 held directly against the high-power solid-state light-emitting device 12 (Figure 1, column 6, lines 11 and 15).

Regarding each of claims 29-31, Hartung ('599 B1) discloses the irradiation unit meeting the limitation in similar manner as that applied for the rejections of claims 26-28 detailed above.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ota et al. (US Patent No.: 6,918,693 B2), Yoneda (US Patent No.: 6,832,849 B2), Utsui et al. (US Patent No.: 6,438,302 B1 and Gonser (US Patent No.: 4,385,344)

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hargobind S Sawhney whose telephone number is 571 272 2380. The examiner can normally be reached on 6:15 - 2:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571 272 2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8/25/2005

Stephen Husar
Primary Examiner